
MAINE NEMO
Nonpoint Education for Municipal Officials
Linking Land Use to Water Quality
Partnership for Environmental Technology Education

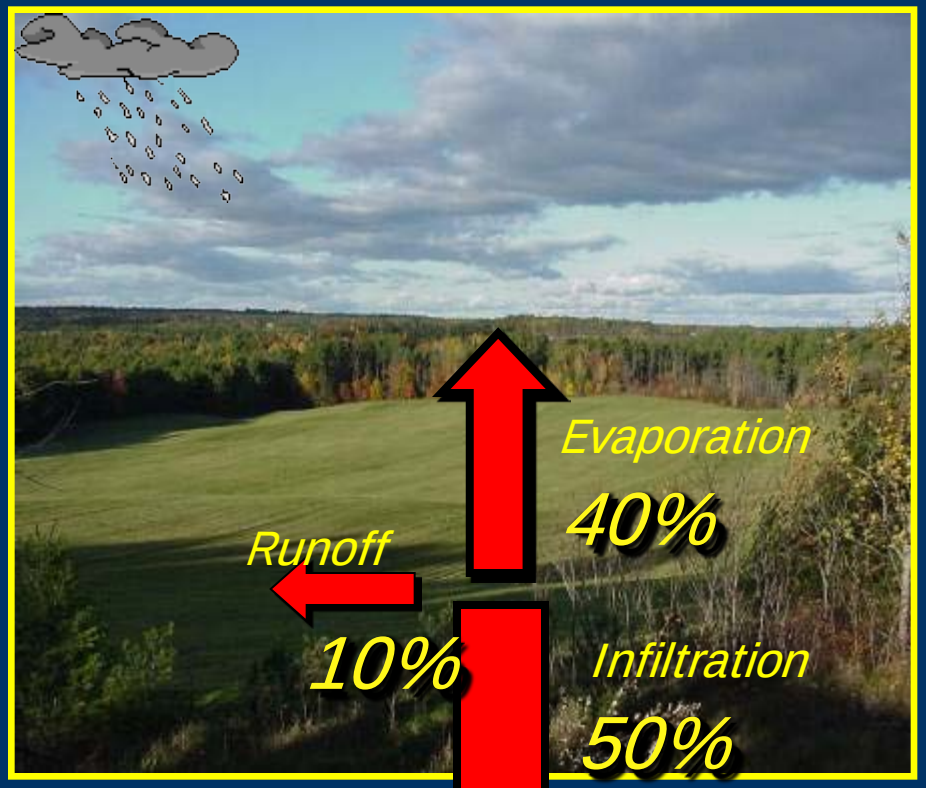
How Land use affects clean water

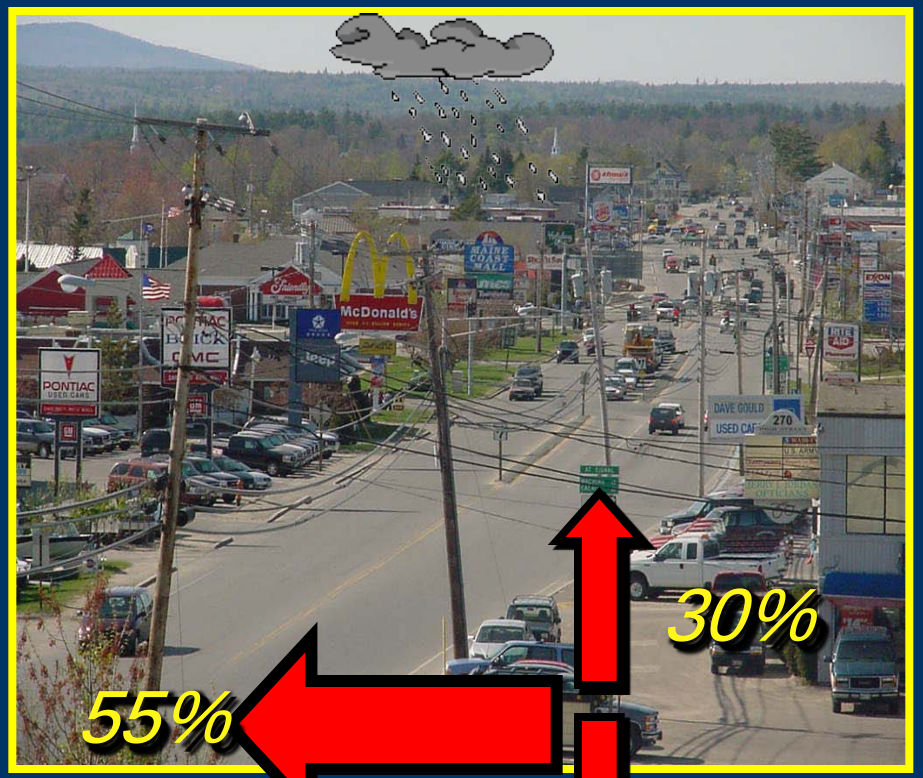
What can help

- Buffers
- Hot spots
- Low Impact Development

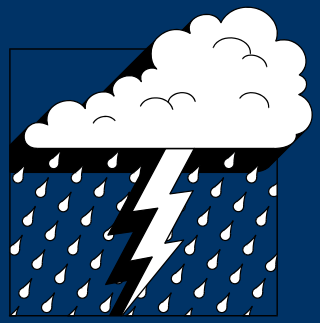

Nonpoint source (NPS) pollution:
When it rains, pollution happens.

Impacts of Development






WELCOME
Raggamuffins



Development Impacts on Water Quality

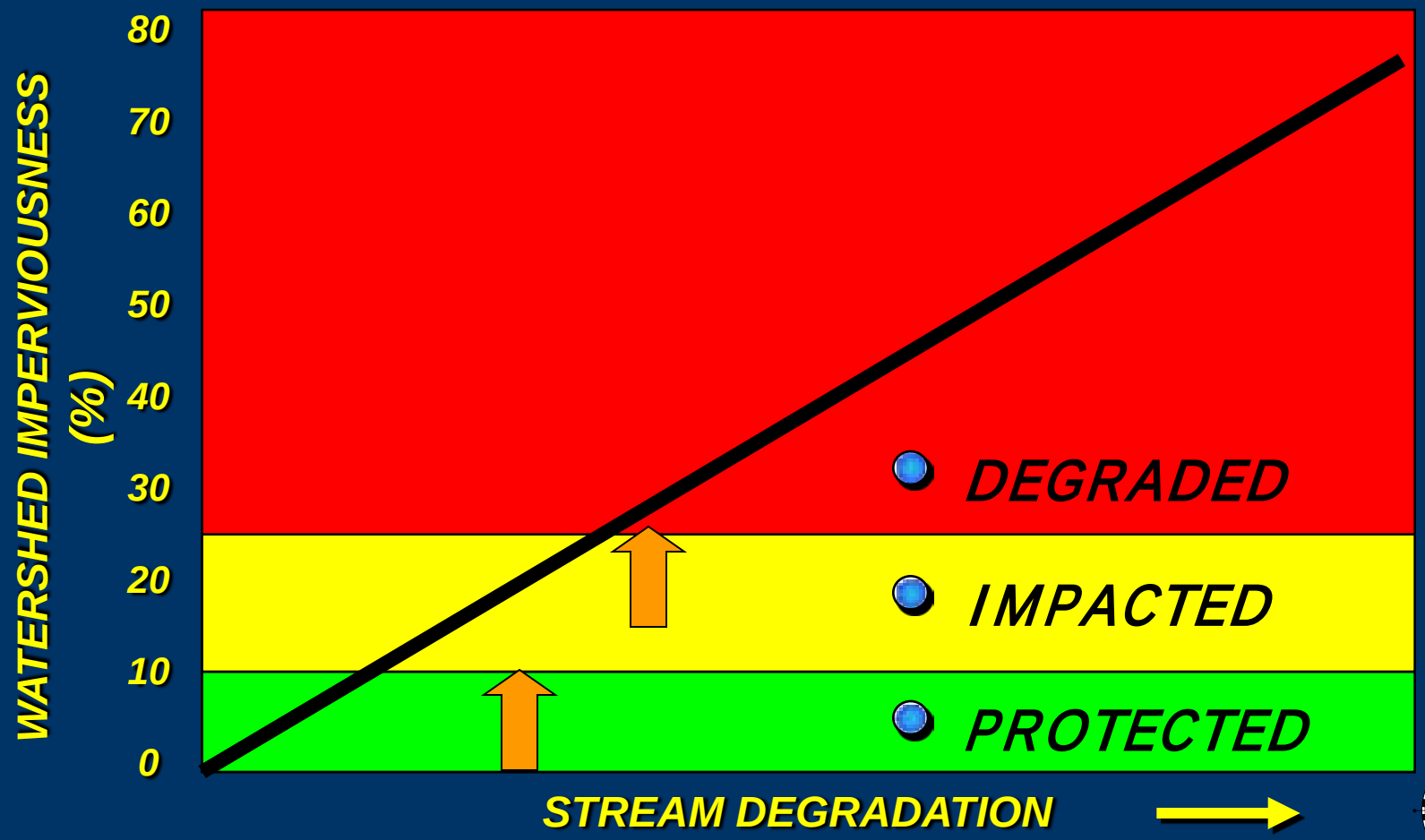
Bacteria
Sediments
Temperature
Nutrients
Petroleum Derivatives
Pesticides and Herbicides
Heavy Metals

Increased quantity

Decreased quality

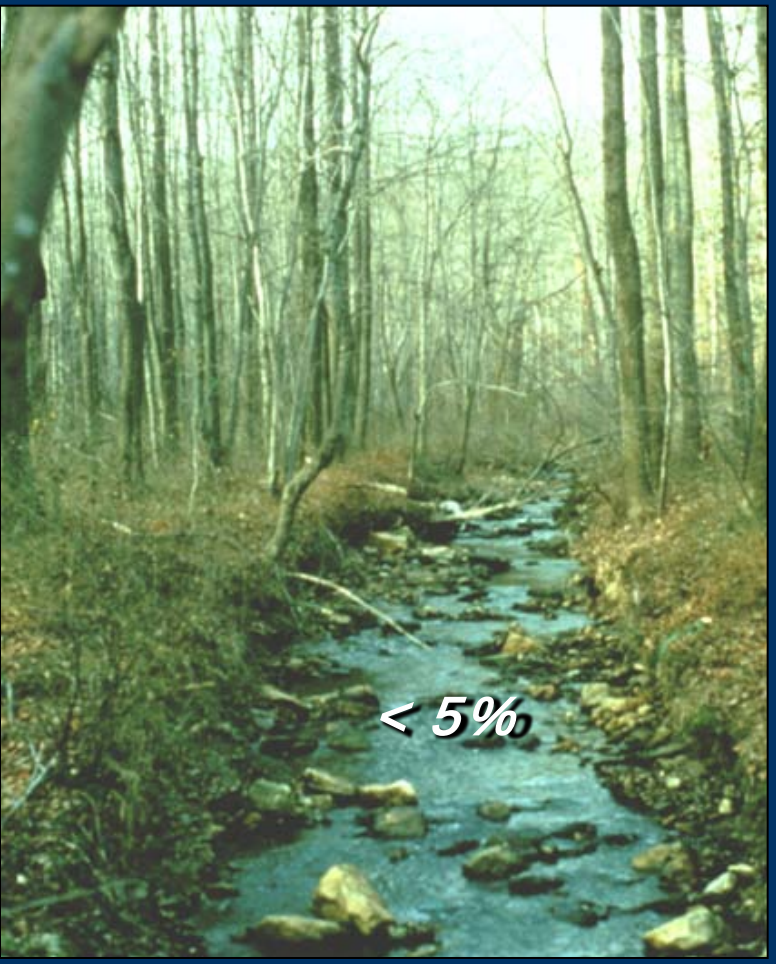

2 Acre Residential
0.21 acres impervious area per house

Waterway Health & Imperviousness



ADAPTED FROM SCHUELER, ET. AL., 1992

Impervious Area and Stream Habitat



Canadian Experimental Lakes Area (#226)

- Pristine lake divided in two
- P added to only one side

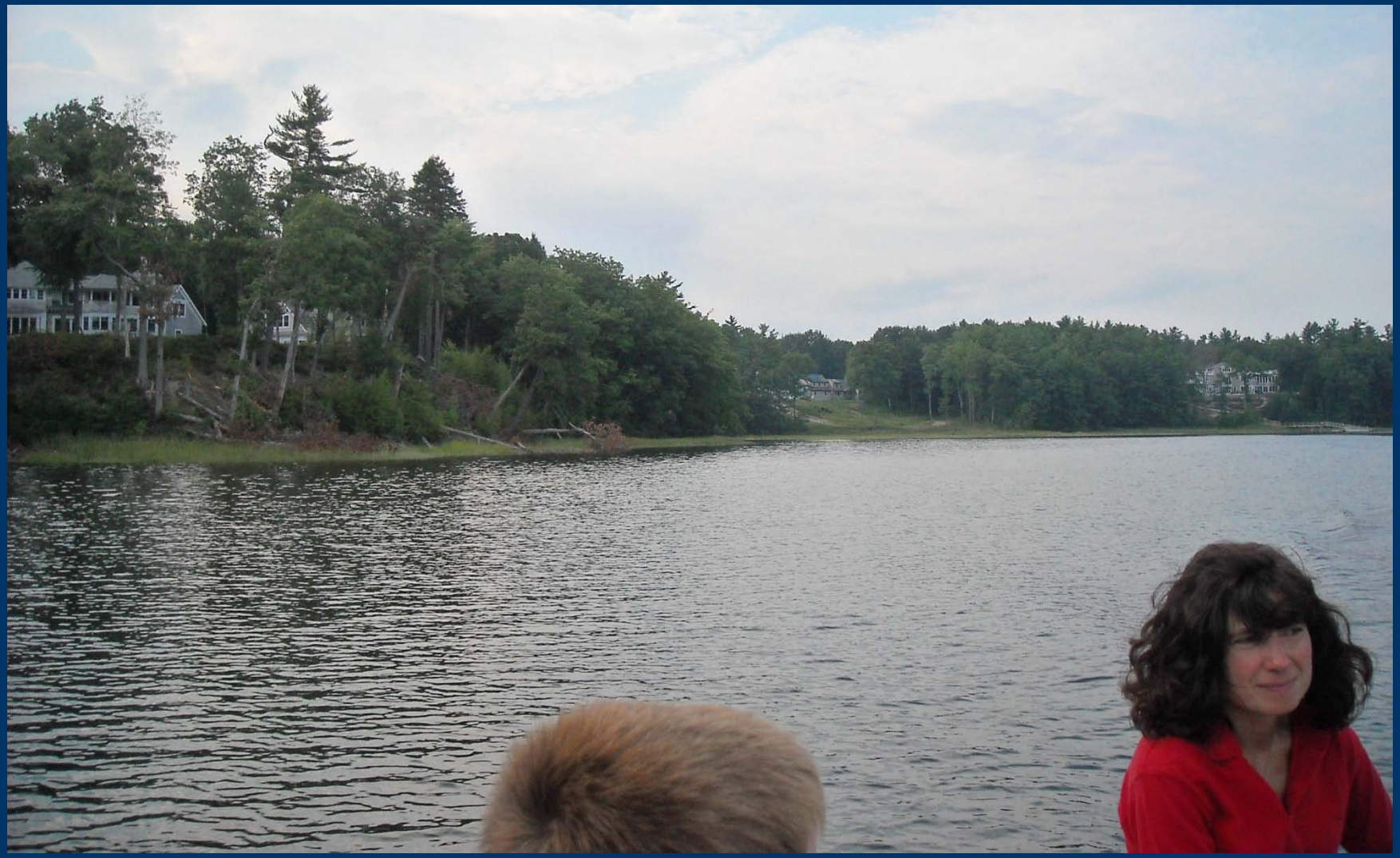
Source: ELA, Fisheries and Oceans Canada


THIS AREA
CLOSED
TO ALL DIGGING
OF
CLAMS, MUSSELS, QUAHOGS,
OYSTERS, CARNIVOROUS WHELKS
OR SNAILS
BECAUSE OF POLLUTION
OR
PARALYTIC SHELLFISH POISON
It has been certified by the State of Maine Department of Marine Resources that clams, mussels, quahogs, oysters, carnivorous whelks and carnivorous snails in this area do not conform with public health standards and regulations as established by the State of Maine and the U.S. Food and Drug Administration.
FOR MORE INFORMATION CALL MARINE PATROL AT:
BOOTHBAY HARBOR OFFICE: 633-9595
LAMOINE OFFICE: 667-3373
Closed Area Number_____
COMMISSIONER OF MARINE RESOURCES


Dead Calm

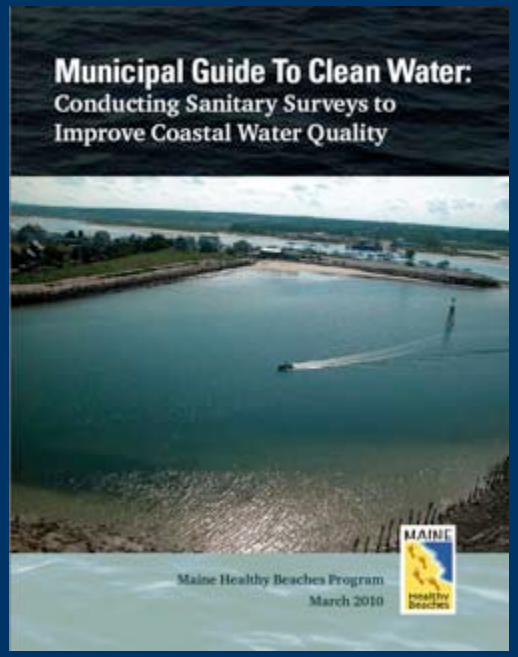
Bigger Buffers are Better

More houses are being developed in the shoreland zone



Treat the Hot Spots

- Failing Septic Systems
- Farm operations in buffer areas
- Commercial with high impact



Use Low Impact Development

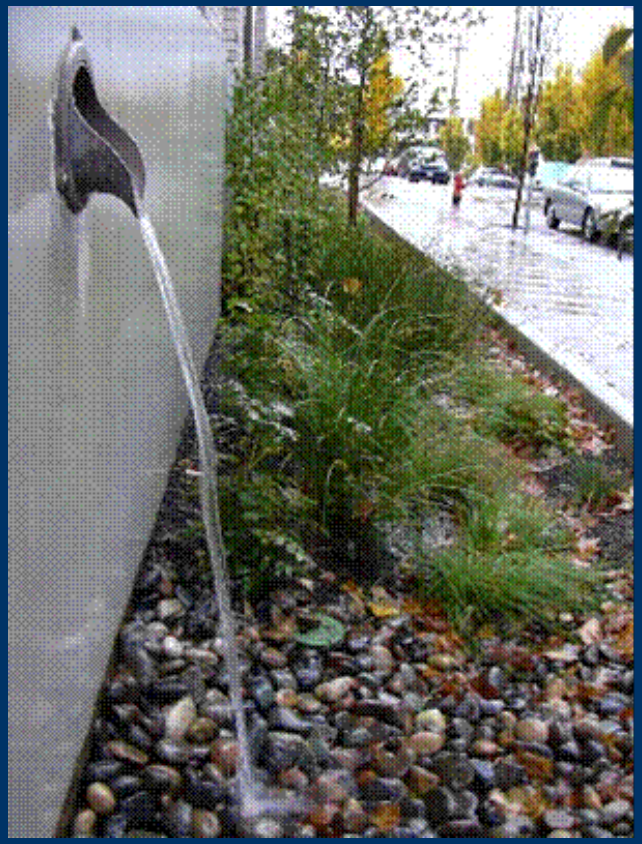
- Soak the water back into the ground before it gets contaminated!

Traditionally, stormwater management is seen as stormwater disposal.

Traditional Development Pushes rain off the site

Low-Impact Development (LID)—

Try to soak rain in close to where it falls




MAY 25 2001


BEST BUY
THE MAINE MALL

Saving money with LID

25% Savings

Slide: Chesapeake

Boulder Hills Subdivision, NH

Boulder Hills Subdivision, NH

$5,000 in Site Preparation
$72,000 Drainage
$6,500 Curbing Reductions
$19,500 Permanent Erosion Control

NET Savings: $50,000
approx 6% of the total project

Greenland Meadows Commercial Development, NH

Require Stormwater Treatment on Individual House Lots

Rain Gardens


Unity Pond

Gravel Grass

Parking stall paved with gravel grass - ready to be put to good use


© Marcus de la fleur, 2007

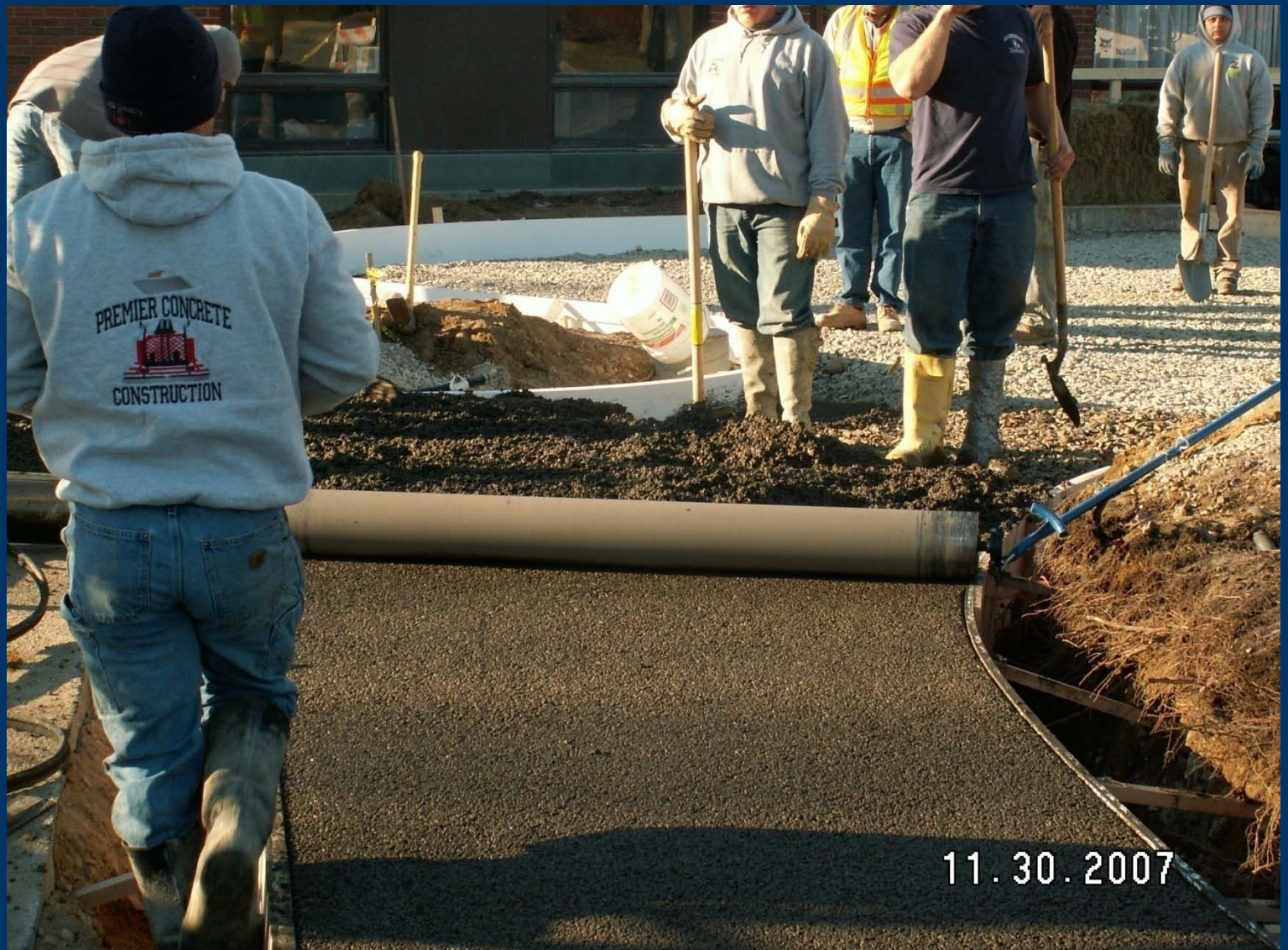
Ordinances that promote LID

- SPO model Ordinance
- South Portland Online Manual
- York Ordinance

York Ordinance language 2007

- Low Impact Design. Each applicant is *required* to *submit a statement* to the Planning Board *documenting proposed* Low Impact Design (LID) *for the site*, which will help to reduce stormwater volumes and help to enhance stormwater quality. LID includes, but *is* not limited to green roofs, rain gardens, tree wells, infiltration basins, and permeable pavement. The applicant shall submit technical documentation about the suitability of such designs with the request for LID features.

Porous concrete York Hospital



Back Cove Rain Garden

Ocean Ave Elementary

Northgate Plaza

Kittery Commercial Raingarden

Kittery Downspout

Orono Raingarden

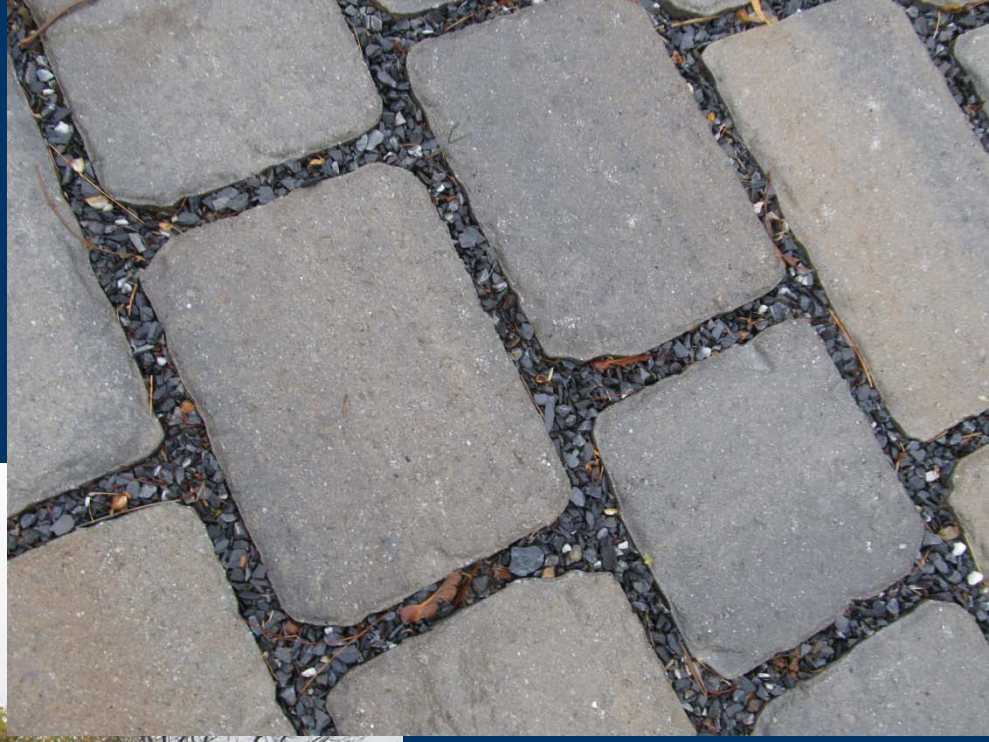
Portland Raingarden

East End School

Commercial and public roofs should look like this

Rockland Greenroof

Belgrade Pavers



Turf reinforcement

Belgrade Raingarden

Belgrade dripline infiltration

Carving Up the Landscape


This is why we do it